

G. BASTAZO (*) & J. E. GARCIA RASO (**)

LONGITARSUS CAROLI N. SP.,
FROM THE SOUTH OF THE IBERIAN PENINSULA

(*Coleoptera Chrysomelidae Alticinae*)

Riassunto. — *Longitarsus caroli* n. sp., della parte meridionale della Penisola Iberica (Coleoptera Chrysomelidae Alticinae).

Si descrive *Longitarsus caroli* n. sp., della Spagna meridionale (Sierra de las Nieves), attribuibile al gruppo del *L. luridus*. E' un insetto subbrachittero, di forma ellittica allungata, debolmente appiattito sul dorso, con punteggiatura pronotale da moderatamente forte a quasi svanita e punteggiatura elitrale vagamente seriatata; la spermateca è di forma tozza, con ductus strettamente arcuato e privo di anse. Sono esposte anche la particolare biologia della specie ed alcuni aspetti popolazionali.

Abstract. — In this paper is described a new flea beetle from the south of the Iberian Peninsula, *Longitarsus caroli*, belonging to the *L. luridus* group. It is an elongate-elliptic, dorsally somewhat flattened, reddish brown subbrachypterous insect, with stumpy spermatheca and tightly curved uncoiled ductus. The particular biology of this species and some populational aspects are discussed.

***Longitarsus caroli* n. sp.**

Type locality: Sierra de las Nieves, Serranía de Ronda, Málaga, South Spain.

Holotype (♀): Quejigales, Sierra de las Nieves, Ronda (Málaga), 1400 m., 30SUF1762, 14/I/1984, on *Phlomis crinita* Cav.

Paratypes: 2 ♂♂, 3 ♀♀, Puerto Saucillo (Yunquera), 30SUF2365, 1250 m., 18/I/1983, on *Phlomis crinita* Cav. 2 ♂♂, Camino Rajete (Parauta), 30SUF1359, 1000 m., 14/I/1984, on *Phlomis purpurea* L. 1 ♂, 1 ♀ the same data but living on *P. crinita* Cav. 13 ♂♂ 17 ♀♀, Quejigales (Ronda), 30SUF1762, 1400 m., 14/I/1984, on *P. crinita* Cav. 3 ♂♂ 4 ♀♀, Quejigales (Ronda), 30SUF1762, 1300 m., 15/I/1983, on *P. crinita* Cav. 2 ♂♂, Camino Rajete (Parauta), 30SUF1359, 1000 m., 15/I/1983,

(*) Trafalgar, 1-1°-4,29003 Málaga, España.

(**) Departamento de Zoología, Facultad de Ciencias, Universidad de Málaga, España.

on *P. crinita* Cav. 3 ♂♂ 3 ♀♀, Quejigales (Ronda), 30SUF1661, 1200 m., 18/III/1983, on *P. crinita* Cav. 2 ♂♂ 1 ♀, Camino Forestal Sierra de las Nieves (Yunquera), 30SUF2466, 1100 m., 9/IV/1983, on *P. purpurea* L. 1 ♀, Quejigales (Ronda), 30SUF1762, 1300 m., 5/V/1983, on *P. crinita* Cav.

All the reported localities are in the province of Málaga, Spain.

The typical series is deposited in the following collections: Departamento de Zoología de la Universidad de Málaga (Málaga, Spain): 1 ♂; Instituto de Investigación Experimental de Zonas Áridas (Almería, Spain): 1 ♂, 1 ♀; Instituto Español de Entomología (Madrid, Spain): 1 ♂; E. Petitpierre's collection (Palma de Mallorca, Spain): 1 ♂, 1 ♀; Muséum National d'Histoire Naturelle (Paris, France): 1 ♂, 1 ♀; Museo Civico di Storia Naturale (Milano, Italy): 2 ♂♂, 2 ♀♀; M. Daccordi's collection (Verona, Italy): 1 ♂, 1 ♀; British Museum of Natural History (London, United Kingdom): 1 ♂, 1 ♀.

The holotype and the other paratypes are deposited in Bastazo's collection (Málaga, Spain).

Diagnosis: A *Longitarsus* species of the *L. luridus* (Scopoli, 1973)-group. It is easily distinguishable from the other species of the genus by the shape of the spermatheca and the monophagy on the genus *Phlomis* (Labiatae).

Description: Length 1.69-2.19 mm (♂♂), 1.88-2.40 mm (♀♀). Elongate-elliptic (Fig. 5), feebly convex and dorsally flattened. Reddish-brown monochrome with the ventral parts darker. Nasal keel very prominent. Frons broad and microreticulate, smooth in the central area and with some setiferous punctures on each side, above the deeply incised lateral frontal grooves (Figs. 1 and 2). Frontal tubercles variable, prominent or almost obsolete. Eyes oval and convex. Antennae 0.67-0.83 × total length (♂), 0.61-0.71 × (♀). Mean lengths of antennomeres show the following relation: 17:11:10:13:13:13:12:13:13:13:17 (♂) and 18:12:11:12:13:12:13:13:13:13:17 (♀). Pronote slightly transverse ($Wp/Lp = 1.34-1.50$, the average is 1.48 (♂); $Wp/Lp = 1.36-1.56$, the average is 1.44 (♀)) with lateral and basal margins finely flanged. Fore setiferous pores conspicuous, at a distance from the fore margin of one third of the pronotal length. Hind setiferous pores on the hind angles. Pronotal punctures uniform, from moderately strong to very weak, the intervals between the points feebly microreticulate and shining. Elytra with slightly arcuate sides. Humeral calli obsolete. Elytral surface as in pronotum, puncturation sometimes somewhat stronger and irregularly seriate. Apical elytral margin with a row of short, erect, white setae. Length of wing equal to or slightly shorter than the elytral length

(subbrachypterous type of LEONARDI's terminology (1971)). Procoxae slightly separated by sternum, prosternal apophysis laterally enlarged. Metasternum smooth. Metatibiae long, outwardly arcuate. Metatibial spur longer than metatibial apical width, outwardly hooked. Penis elongate, in dorsal view slightly widened towards apex; in lateral view arched with recurved apex. Ventral groove complete (Figs. 4a, 4b, 4c).

Spermatheca: body globose and narrowing to ductus. Sclerotized ductus thick, tightly curved, without ansae, with a terminal round ampulla. Collum well separated from base; cornu very large, shape variable, with or without terminal tooth (Figs. 3a, 3b, 3c, 3d).

Sexual dimorphism: sexes are easily distinguishable by the apical outline of the anal sternite, which is uniformly arched in females (Fig. 1a) and has a median depression, with an almost rectangular projection in the middle in males (Fig. 6a). Both sexes lack foveae on the anal sternite. Male and female tergites as in the figs. 6b and 7b respectively. No sexual dimorphism concerning the first protarsomere.

Morphometrical data: the obtained morphometrical data are shown in the table 1 (all the measurements are in mm).

TABLE 1.

	Males (n = 23)		Females (n = 20)	
	Interval	Mean	Interval	Mean
Le	1.20-1.62	1.37	1.37-1.73	1.54
Lp	0.40-0.60	0.46	0.37-0.56	0.48
Lt	1.69-2.19	1.95	1.88-2.40	2.18
La	1.40-1.57	1.47	1.43-1.70	1.55
We	0.38-0.63	0.49	0.47-0.63	0.56
Wp	0.57-0.70	0.64	0.60-0.77	0.69

(Le: elitral length, Lp: pronotal length; Lt: total length; La: antenal length; We: elytral width; Wp: pronotal width).

Etimology: We are very pleased to name this new species after the outstanding Alticine specialist Dr. Carlo Leonardi (Mus. Civ. St. Nat., Milano), who confirmed us the originality of the taxon. His help and encouragement have been extremely valuable in our studies on Alticinae.

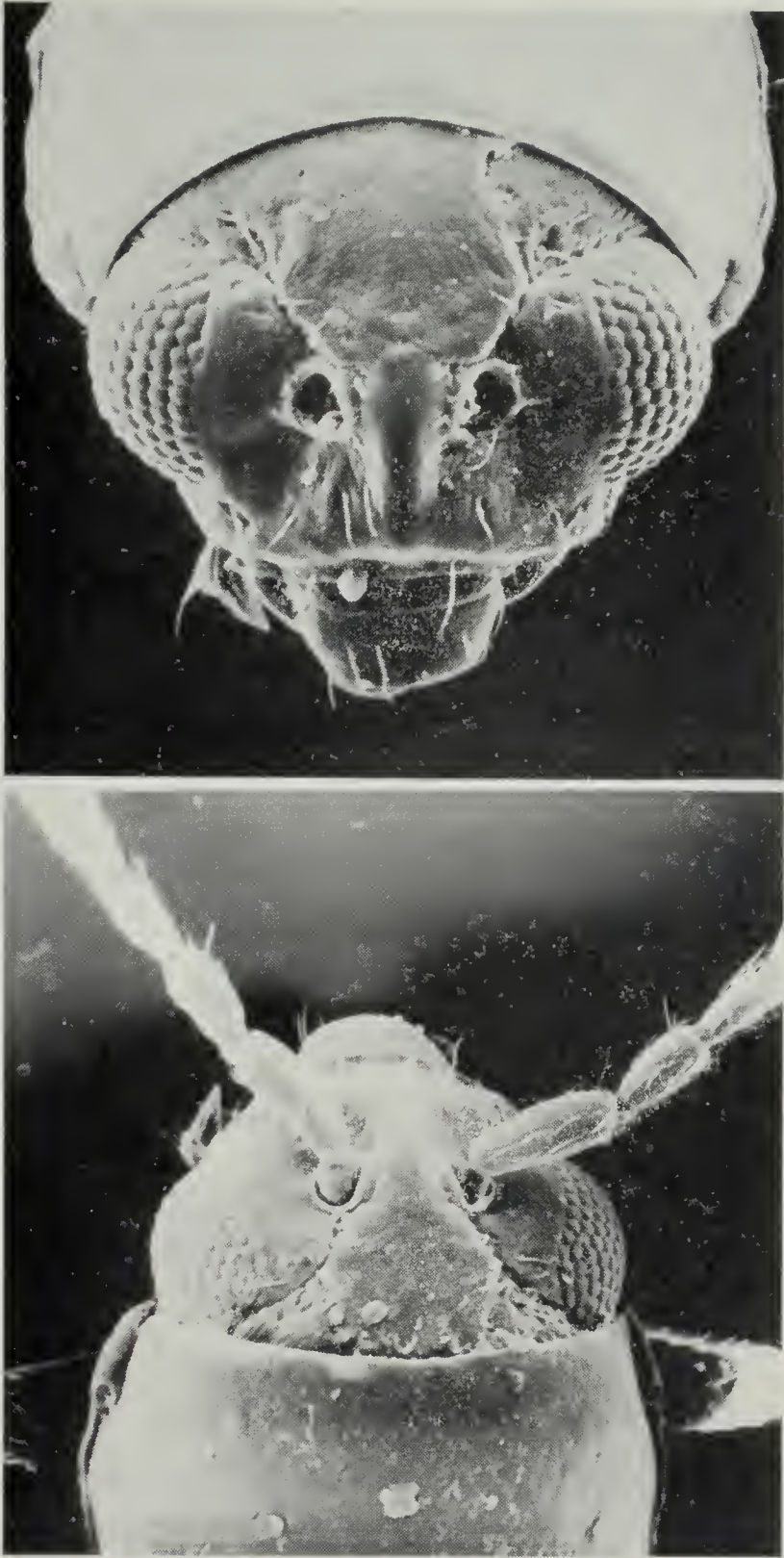


Fig. 1 (above). — Frontal view of *Longitarsus caroli* head (Scanning microphotograph). Fig. 2 (below). — Dorsal view of *Longitarsus caroli* head and fore portion of the pronote (Scanning microphotograph).

Affinities: *Longitarsus caroli* n. sp. can be included in the *L. luridus* (Scop.)-group (as stated by LEONARDI, 1972), since it presents well incised lateral frontal grooves and reddish-brown dorsal colour.

Among all the species of the group, only *L. fulgens* (Foudras, 1860) and *L. caroli* n. sp. have spermathecae without ansae (see LEONARDI, 1973, for the former species). The latter species differs from the former by its more elongate outline (Fig. 5), paler colour, less shining surface, the different shape of penis and spermatheca and the lack of fovea in the male anal sternite (a small rounded fovea is present in *L. fulgens*).

Phenology.

The period of feeding and breeding activity in the new species extends, according to our observations, from the beginning of January till the beginning of May (I-V). The highest density is found about in the middle of January, time of very severe climatic conditions in the mountainous area where the new species lives. This is an unusual fact among Mediterranean Chrysomelids, which develop their imaginal activity throughout the months V-VII in mountainous areas (and throughout the months III-VI in lowland areas).

The phenomenon of winter activity in some species of Mediterranean mountainous areas can be explained by their Eurosiberian origin. Nevertheless, in this particular case, we think that early appearance must be caused by the special phenology of the host plant and the perfect synchronization between parasite and host-plant cycles.

The labiatae *Phlomis crinita* Cav., main host-plant of *Longitarsus caroli*, is a Mediterranean chamaephyte with restricted distribution (South and East Iberian Peninsula, North Morocco), whose new leaves development period starts in January. The imagines appear at this moment and their activity period coincides with the development of the young tender leaves, which are their only food.

Populational considerations.

The spacial distribution known of *L. caroli* coincides with that of its food-plant, *Phlomis crinita*. This plant forms settles of 5 m maximal diameter, which are well separated one from another.

Flight capacity of *L. caroli* is null, since both wings and wing musculature are reduced. On the other hand, the jump of alticines seems to be a defensive mechanism which takes place in escaping rather than

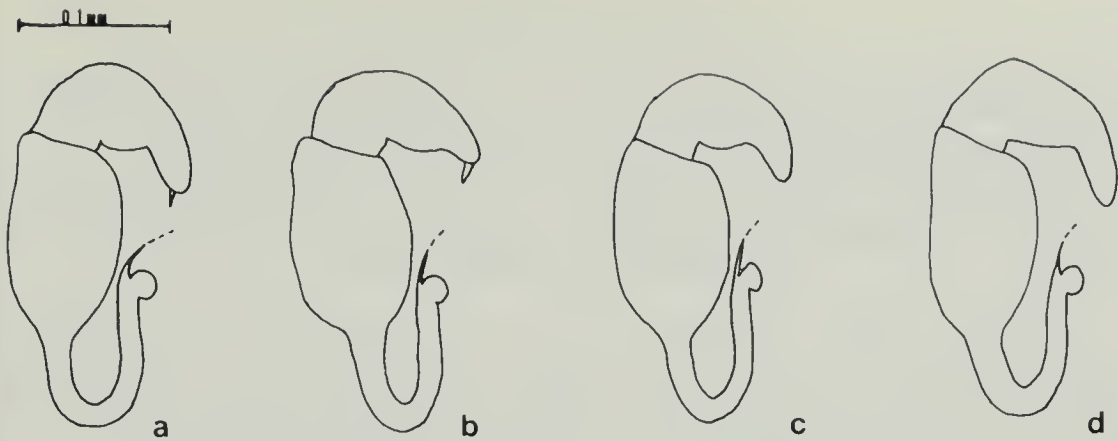


fig. 3

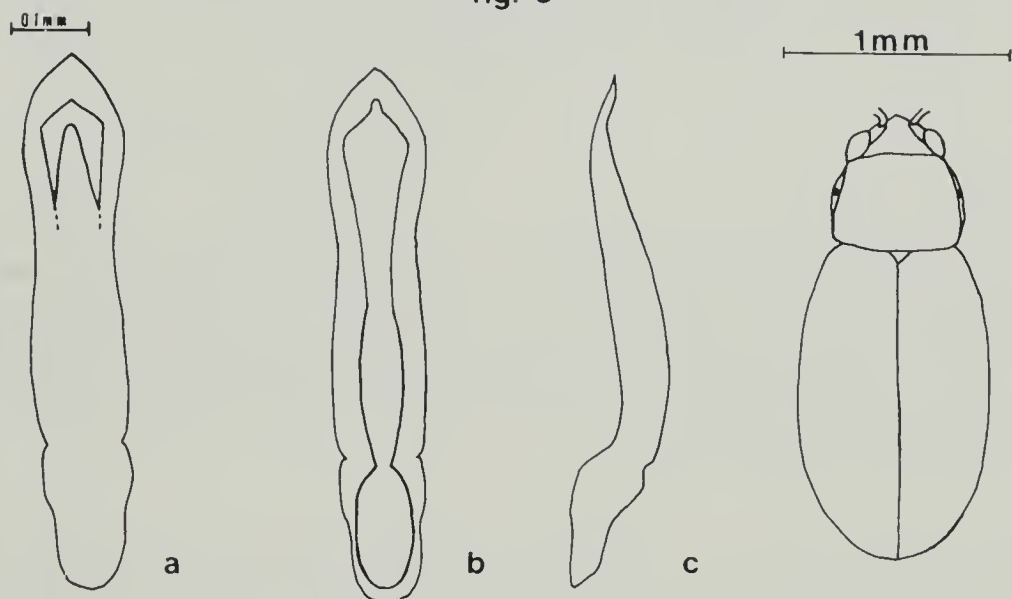
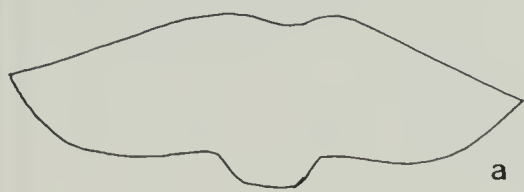


fig. 4

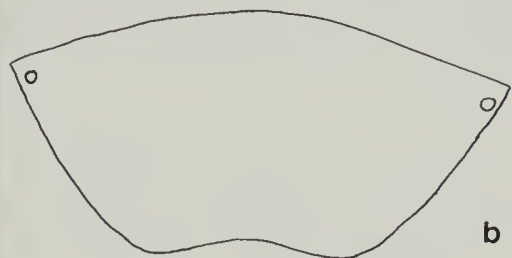
fig. 5



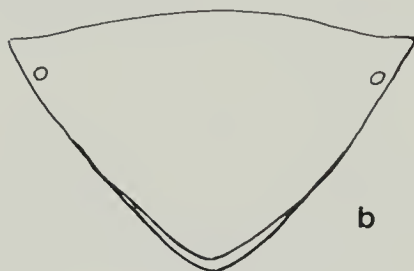
a



a



b



b

fig. 6

fig. 7

Figs. 3-7. — *Longitarsus caroli*. 3 (a, b, c, d), spermathecal variability; 4, penis; dorsal (a), ventral (b) and lateral (c) view; 5, body outline; 6, male anal sternite (a) and tergite (b); 7, female anal sternite (a) and tergite (b).

in displacement and the wind dispersion would not be so important for an insect which lives only when its food-plant is 10 cm high.

Admitting all these assumptions, we think that the present species has a demic populational structure with very poor genetic interdemic exchange.

SCHERER (1978) assumes the existence of superpopulations interconnected by genetic flow in the flea beetle *Podontia affinis* (Gröndal) and confers a great importance to the role of superpopulations in the evolution of Chrysomelids. Perhaps this pattern could be applied to the polyphagous species with a high dispersal capacity and a wide geographical distribution, but we want to emphasize that we do not consider it valid for species like the present one, which are arranged in little disconnected demes and present a restricted geographical distribution and a low dispersion power.

In these cases, the most idoneus alternative mechanism for replacing the given importance to genetic flow in the populations stability maintenance is the genetic homeostasis. The apparition of isolated-panmictic nucleus is favoured by the demic populational structure. Thus, genetic newnesses progress quickly and they can give origin to new species by means of quantic phenomena.

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LITERATURE CITED

- LEONARDI C., 1971 - Considerazioni sulle *Psylliodes* del gruppo *napi* e descrizione di una nuova specie - *Atti Soc. ital. Sci. nat. Mus. civ. Stor. nat. Milano*, 112 (4): 485-533.
- LEONARDI C., 1972 - La spermateca nella sistematica del genere *Longitarsus* - *Idem*, 113 (1): 5-27.
- LEONARDI C., 1973 - Note corologiche e tassonomiche su alcuni *Longitarsus* con citazione di due specie nuove per l'Italia - *Idem*, 114 (1): 5-42.
- SCHERER G., 1978 - *Podontia affinis* (Gröndal) a polytypic species - *Spixiana*, 1 (3): 275-280.